POTENTIAL MARKET FOR SHRIMP HEADS?

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A method of preserving shrimp heads that may lead to expanded use of shrimp processing wastes in animal feeds has been discovered at the National Marine Fisheries Service Galveston Biological Laboratory.

The usual methods of stabilizing the powerful enzymes present in shrimp processing wastes are to heat or dry the wastes. Unfortunately, these methods destroy some of the nutritive value of the wastes, particularly the nutritive value to other shrimp.

As part of studies of sexual maturation in shrimp conducted at the Galveston Laboratory, a food was formulated to encourage rapid growth and sexual development. A major ingredient of this food is shrimp heads collected from a local shrimp processing plant. It was noted that the rapid breakdown of the heads caused by powerful enzymes could be halted by destruction of these enzymes with acid.

The treatment used to destroy these enzymes follows:

1. Fresh or frozen shrimp heads are ground and treated with concentrated hydrochloric acid until the pH of the mixture reaches 1.8. This mixture is allowed to stand 6 to 24 hours at room temperature.

2. A base such as ammonium hydroxide or sodium hydroxide is added to the mixture until it reaches a neutral pH (7.0).

3. Supplemental nutrients are added if desired. The shrimp feed being used in these maturation studies includes 1% cholesterol, 0.2% corn oil, 2.4% dextrose, and 1% vitamin mixture.

4. The mixture is bound with 5% gelatin, which is dissolved in warm water and added to the other ingredients. After the ingredients are mixed, they are placed in a refrigerator to gel.

5. The solid feed is cut into pieces of convenient size and dried in an air tunnel at room temperature.

Cholesterol is added to this experimental feed which is being used for studies of sexual maturation because it is suspected to be an essential precursor of some shrimp hormones. It may not be needed in this quantity in growth formulations.

The analysis of feed produced using this technique is:

	Percent
Protein	45.87
Fat	3.90
Moisture	34.69
Chlorides	2.86
Calcium as CaO	5.37
Phosphate as P_2O_5	1.81
Ash	12.28

The feed contains a high concentration of salt, which might limit its usefulness in some feeds, particularly if the shrimp heads made up a high proportion of the feed. However, the salt content of the feed developed at Galveston apparently has no adverse effects on shrimp. Growth rates of brown shrimp (Penaeus aztecus) fed this feed alone ranged from 80 mg to 110 mg per day between the sizes of 50 and 95 mm (total length).

The use of this technique may make shrimp processing wastes a more valuable feed supplement, thereby providing a market for wastes presently not utilized.

The author is a Fishery Biologist, NMFS Biological Laboratory, Galveston, Texas 77550.

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